

# INFORMATION TECHNOLOGY: RELIABLE INFORMATION FOR BETTER HEALTH

The Information Technology Committee ensures that Washington's public health professionals have access to information and technology when and where they need it—from the simple extension of e-mail systems onto handheld devices, to installation of complex security functions so that data are protected. The goal is to employ appropriate and effective technology, in the background, to make the work of assuring the public's health easier, more efficient, and more effective.

## Rapid changes and growing expectations for “e-government”

People expect government agencies to adopt technology-based ways of doing business when it translates to faster and better service. For example, public health agencies used to rely on a paper-based system for birth certificates, making obtaining birth records a somewhat slow process. Today, birth certificates are issued from an electronic system that links hospitals, all local health jurisdictions, and the state vital records office. Obtaining records is quick and can be done from any county in the state, regardless of where the original certificate was issued. Next, death certificates will become part of an electronic system. In both cases, developing these systems takes time, and a significant initial investment must be made to acquire new technology. But the updated systems are more efficient and provide tools for long-term cost savings.

Change has always been a part of the information technology (IT) field, but the rate at which this change occurs has increased dramatically in recent years, and public health agencies are challenged to keep pace. Most phone systems are complex computers, and most workers use a personal computer during their workday. Many factors combine to put pressure on public health to adopt new technology including new federal laws on medical record handling, changes in computer operating systems, and the adoption of new technology by partners.

Across all service areas, there is a need to adopt new technology: keeping track of data for client records or evaluation, using handheld computers in the field to save time transferring information later, adopting new analytical tools to support decision-making. All of this translates to a new demand within public health; IT tools have become a critical part of our infrastructure and will require resources as we adapt to the new “electronic” world.

## The need for system-wide coordination

Most local health jurisdictions rely on county governments to provide their basic IT infrastructure, and each county government has its own process for procuring equipment, software, and support. Yet there is increasing need for state and local public health offices to share information quickly, and reliable interconnectivity between these systems is required. As the



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public health system evolves, it will be important to move from “home grown” systems that evolved without common standards to a more sophisticated approach that will allow integration of information management within large systems.

The Information Technology Committee has provided an initial forum to coordinate across disparate IT environments, so that public health agencies can work as members of a shared system. The committee approaches IT planning for public health in terms of designing interconnecting pieces that are based on “common architecture” or design standards. It has helped set priorities among many emerging information-technology applications.

The committee is also working with a growing circle of partners who are essential to public health, including clinical laboratories, hospitals, and funeral homes. Some of the applications under development will connect these entities to public health agencies, on a continuous basis, 24 hours a day, seven days a week.

As more applications are developed, it will be increasingly important to have a central forum for planning and coordinating IT work. The Information Technology Committee, or an entity established as an outgrowth of this effort, can play a crucial role in guiding coordination in areas such as funding, maintenance, and oversight, as well as such routine operational tasks as authorizing access, maintaining security, and training individuals in the use of applications. The impact of this work will be to reduce duplication, assure “interconnectivity” so health departments can share information as needed, and reduce expenditures over time, perhaps through joint purchasing power.

### New roles emerge, along with technology

As information technology becomes a prominent part of public health practice, it has a direct effect on the workforce. Some jobs are performed differently with technology, so new skills are needed. Sometimes, whole new roles emerge as a result of adopting new technology. For example, making training accessible statewide requires someone with specialized skills

to manage distance learning technology such as satellite transmission, on-line courses, and web-conferencing. With many aspects of public health practice adopting technology tools, new worker roles are emerging to handle a broad array of IT needs, from basic computer support to training in the use of various applications.

Technology is also changing the way agencies relate to one another. The committee is considering the essential roles and activities that must be performed in every public health agency so that information is secure—yet can flow easily. This requires agreements about how data will be handled, who will authorize access to data, where data will reside, and how data will be kept up-to-date (see Appendix 10).

### Information systems that are improving public health today

While technology comes with challenges, it also brings tremendous benefits that can improve the quality of public health services. Washington’s innovative public health workforce has some very valuable applications developed or in development. Some examples are detailed below.

- The **Public Health Issue Management System (PHIMS)**, a secure, web-based application for local health jurisdictions and Department of Health staff to use to investigate and report communicable disease, is in production in several counties. Local health jurisdictions will use the new PHIMS to investigate and report disease occurrence to the state Department of Health, which can send the information on to the federal public health agency, the U.S. Centers for Disease Control and Prevention (CDC). PHIMS will bring faster disease outbreak investigation and quicker treatment, which should result in reduced spread of disease in the community.

PHIMS will make it faster and easier to maintain accurate records during a disease event, and comparable information can be shared across counties when needed. It can summarize and

provide data for charts showing the trend in a disease outbreak. Without PHIMS, every jurisdiction has to create and maintain its own records and carry out its own analysis—all of which can be very time-consuming.

- The **Washington Secure Electronic Communication and Urgent Response System (WaSECURES)** is a secure web-based tool providing urgent communication for public health emergency response partners. Many public health partners now send such messages via e-mail listservs, with no way to verify whether the intended recipients have received them. In the WaSECURES application, an emergency notification is typed into the system and converted to audible voice. The notification can then be sent via e-mail, pager, or phone.

WaSECURES will be very important if we have a natural disaster, terrorism event, or other catastrophic health event where the entire system must mobilize quickly. When danger is high and time is short, public health expertise will be needed quickly. Through WaSECURES, Washington's public health leaders will be able to respond after hours as well as during the regular work week.

- Speed is often very important in responding to a public health concern, whether to rule out a problem such as rabies or SARS—or to confirm a problem and initiate appropriate action. The **Public Health Reporting of Electronic Data (PHRED)** system is a secure, web-based application that hospitals and laboratories will use to transmit laboratory reports electronically. The system will pass these laboratory results to the appropriate local or state agencies. This reporting includes both infectious and non-infectious conditions. The results of using PHRED will mean some people can start treatment sooner, reducing disease in the community, and public health officials will have added ability to track disease patterns.

- **VISTA** is a standardized tool that helps collect, analyze, interpret, and share information for community health assessment. This web-based, menu-driven software package—now used across the state's public health system—allows users with diverse computer skills to access and analyze population-based health data. New features include integration of 2000 Census data and sub-county population estimates (see <http://www.doh.wa.gov/OS/Vista/HOMEPAGE.HTM>).
- **“EDITH”** is an Electronic Data Transfer Hub that provides a secure, reliable, Internet-based system for the electronic interchange of public health information. Initially, it will focus on handling information about laboratory-notifiable conditions, as defined in WAC 246-101.
- **The Electronic Death Registration System (EDRS)** is a secure, web-based application that will enable the professionals participating in death registration to file death records with local and state registrars electronically. It will allow decedent demographics and cause-of-death information to be registered electronically by multiple participants.
- **EpiQMS** is a tool for analysis of health data that may include a geographic information system (GIS) function.
- **Epi-X** is a secure, web-based communication system provided by the CDC to state epidemiologists and various other public health officials.
- **The Pre-Event Vaccination System (PVS)** is a web-based system that supports the secure exchange of data about those being vaccinated against smallpox. The states and CDC will continue to use this information to ascertain progress in preparedness activities, to assist in the monitoring of adverse events, and to track personnel who are protected by vaccination and able to participate in smallpox response efforts.

## Recommendations for 2005-07

1. Develop a shared administrative structure for maintaining and enhancing evolving applications and development of a cost-sharing model for all public health IT systems in Washington.

Work has progressed on IT systems that will serve both governmental and non-governmental agencies at both the state and local level. A shared administrative structure is needed for the ongoing maintenance and improvement of these applications, as well as for considering cost-sharing models and a variety of funding sources.

2. Identify top-priority areas where better use of technology could improve public health practice.

Using prior analyses of business needs and new information, the committee should consider which programs and activities would benefit most from new technology applications. Some specific examples might be home visits or restaurant inspections or system-wide applications for documenting client services.

3. Evaluate and recommend standards for hardware, software, servers, security, distance learning, and data collection and transfer.

With the goal of seamless integration, a common look and feel, a common point of entry and security, the IT system standards are essential to assure that the public

health system remains connected and able to share information quickly and confidentially. The committee should also explore the ideas of role-based standards: defining what is expected of a person based on job function as well as the roles and responsibilities of various agencies in the information chain.

4. Leverage financial investments in technology most effectively.

The committee and partners should explore ways to calculate the maximum benefit of the new technologies, including a cooperative model with shared resources and group purchases.

5. Review and evaluate applications to identify opportunities for efficiencies.

The committee should seek ways to improve the ability to analyze, aggregate, and use existing data by implementing standards, avoiding duplication, using common data elements and definitions, and developing interface applications where needed. It should also explore ways to develop a common look and feel for accessing a variety of data sets.

6. Implement on-going training into IT planning.

Computer applications will be effective only when accompanied by training. The committee should consider ways to develop and implement “informatics competencies” as well as an IT resource center.



# APPENDIX 10: EVOLVING ROLES TO SUPPORT INFORMATION TECHNOLOGY FOR PUBLIC HEALTH

The new technologies that make information collection, processing, and exchange more efficient for public health agencies also require new staff responsibilities. The Public Health Information Technology Committee has identified the following roles and activities that must be present in every agency to keep information systems efficient and secure.

## Technology roles for agency administration and management

- Assign roles for agency and clearly communicate expectations; provide guidance and guidelines.
- Develop a coordinated approach to approve individuals for access to specific applications and to approve the “rights” to be granted each individual for each application (i.e., types of rights, application administrators, supervisor access for monitoring program or employee performance, user-only, etc.). Decide who in the agency—among supervisors, managers, and program directors—will approve individuals for access to specific applications and who will communicate this information to the state Department of Health.
- Decide who will go to which trainings and how often.
- Decide and approve how much of which type of equipment to acquire.
- Decide and approve use policies—expectations, monitoring, and consequences regarding security, timeliness, accuracy, accountability, and acceptable behavior regarding use.

## Technology roles that might be assigned to the IT manager

- Decide how much of which type of equipment to acquire.
- For individuals approved for access and specific rights to specific applications, arrange for necessary and appropriate equipment, security tools such as digital certificates, training, etc., and communicate this information to the state Department of Health.
- Maintain the list of who has access, and the specific rights granted, to which applications. Communicate this information, as appropriate, routinely to state Department of Health.
- Maintain a tracking system that includes 1) who has been granted access and which type of rights to what; 2) who has signed the necessary paperwork, such as security and confidentiality statements and data-sharing agreements; 3) who has been trained in what and who is due for training; 4) when each digital certificate expires or needs to be renewed, etc. Communicate this information, as appropriate, routinely to state Department of Health.
- Maintain current contact or profile information, such as accurate e-mail addresses for each user. Manage a reminder system to queue employees to update their own contact information and profile. Communicate this information, as appropriate, routinely to state Department of Health.
- Maintain a collection of current policies regarding data access and a current list of who may grant approval.

- Serve as information coordinator in assuring that once an employee has been appropriately approved for access to an application, the agency's application administrator or technical staff make the appropriate changes.
- Assign individuals to "administer" the application within the agency or region—i.e., with WA SECURES and LMS, local health jurisdictions will administer and manage their own use of the application. This will require significant training and frequent (sometimes daily) work with the application.
- Serve as main point of contact for the local health jurisdiction in communications with the state Department of Health application, program, or technical staff.
- Serve as the agency technical resource for the specific application.
- Provide general technical resource per agency policy.

### Technology roles that might be assigned to human resources or quality improvement or assurance managers

- Develop a coordinated approach to approve individuals for access to specific applications and to approve the "rights" to be granted each individual for each application (i.e., types of rights, application administrators, supervisor access for monitoring program or employee performance, user-only, etc.). Decide who in the agency—among supervisors, managers, and program directors—will approve individuals for access to specific applications and who will communicate this information to the state Department of Health.

- Maintain current contact or profile information, such as accurate e-mail addresses for each user. Manage a reminder system to queue employees to update their own contact information and profile. Communicate this information, as appropriate, routinely to state Department of Health.
- Maintain collection of current policies regarding data access and a current list of who may grant approval.

### Technology roles needed at the State Department of Health

- Establish a single point of contact to learn about each application—technical specifications, equipment and security requirements, user and administrator training, access help desk resources, types of rights available for users, etc.
- Establish a single point of contact for local health jurisdictions to arrange for necessary and appropriate equipment, security tools such as digital certificates, training, etc.
- Establish a single point of contact for local health jurisdictions to communicate changes in individuals approved access.
- Coordinate an approach for maintaining a tracking system and providing routine reports to local health jurisdiction leadership that includes 1) who has been granted access and which type of rights to what; 2) who has signed the necessary paperwork such as security and confidentiality statements and data-sharing agreements; 3) who has been trained in what and who is due for training; and 2) when each digital certificates expires or needs to be renewed.